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DRIVER BEHAVIOR AND LEGAL SANCTIONS: A STUDY OF DETERRENCE

*Roger C. Cramton**

THROUGHOUT the ages legal sanctions have been created and enforced in part because they were thought to channel human behavior in desired directions. With the increase in governmental activity resulting from the complexity and interdependence of modern society, emphasis on the purposive use of legal sanctions has increased. Law is no longer widely viewed as mysterious, sacred, and relatively immutable, but as a rational tool that can assist in accomplishing social purposes. Increased reliance on governmental controls, however, involves risks of undue intrusion upon individual choice and other harmful consequences. Careful examination of existing and proposed legislation to determine whether its purposes are likely to be achieved—and at what cost in terms of social effort and undesired consequences—is now a necessity rather than a luxury that a more limited government might eschew.

A rational society will design its legal arrangements so that, insofar as convenient and possible, undesired and antisocial behavior is minimized and socially useful behavior is encouraged. If the society values the independence and dignity of its individual members, it will both minimize the use of official coercion and tolerate a considerable free zone between prohibited and encouraged behavior, thus avoiding the situation in which everything that is not forbidden is compulsory.

The prevention of needless death, injury, and loss is universally desired by reasonable men. More specifically, a reduction in the level of deaths, personal injuries, and economic loss resulting from widespread use of motor vehicles is clearly an appropriate objective of regulatory action. There is controversy concerning only the techniques that should be used and the level of societal effort that is appropriate. Obviously, some forms of control will work better than others. And at some point countervailing values, such as freedom in

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the use of one's vehicle, efficiency in transportation, minimization of coercion, and preservation of privacy and individual dignity, will outweigh the desire to make further savings of life, limb, or property. Society must determine the point at which a further reduction in highway accidents is no longer worth the price that must be paid. Policy-making is so widely diffused in our society that a vast number of individuals and organizations participate in striking this balance, sometimes through conscious actions and sometimes by taking individual steps that indirectly affect the ultimate choice (if only by limiting the range of practical choice for the conscious policy-makers). The special task of the behavioral scientist is to analyze alternative legal arrangements from various points of view and to provide as accurate a statement as possible concerning the actual or expected benefits and costs of existing and proposed arrangements. With this information (or its best practicable approximation) policy-makers may make an informed and rational choice of various modes and levels of social control.

Highway safety is no different from other social problems in this respect. Aside from the effectiveness of capital punishment as a deterrent,¹ there has been little study of the effectiveness of legal sanctions in achieving their purported goals. Contemporary problems in the control of drug addiction,² the enforcement of selective service laws,³ the demand for gun control legislation⁴—all of these are fit subjects for similar scrutiny. Attention has been devoted to highway safety primarily because there is wide acceptance of the regulatory objectives (reduction of accidents and facilitation of traffic movement), because the frequency of occurrence of offenses produces a massive amount of data for analysis, and because the low moral content of most traffic offenses makes possible a freedom of experimentation with enforcement and treatment methods that cannot be duplicated in more sensitive areas.

A diverse group of legal sanctions—criminal, civil, and administrative—is presently employed in order to control driver behavior so as to reduce accidents and facilitate traffic movement. Do these sanctions have the desired effects? At what costs are the sanctions

1. See Sellin, *The Death Penalty*, in MODEL PENAL CODE app. (Tent. Draft No. 9, 1959).

2. See I. CHEIN, *THE ROAD TO H: NARCOTICS, DELINQUENCY, AND SOCIAL POLICY* (1964); W. ELDRIDGE, *NARCOTICS AND THE LAW* (2d ed. 1967).

3. See Griffiths, *Punitive Reclassification of Registrants Who Turn in Their Draft Cards*, 1 SELECTIVE SERVICE L. REP. 4001 (1968).

4. Zimring, *Is Gun Control Likely to Reduce Violent Killing?* 35 U. CHI. L. REV. 721 (1968).

employed, not only in terms of direct expense but also in terms of side effects and unintended consequences? Would alternative arrangements be more effective? Answering such questions requires both accurate and relevant data, and a general theoretical perspective that considers legal sanctions as part of larger social processes and systems.

We currently lack both the data and the theory needed to assess accurately the effectiveness of sanction programs.⁵ A start has been made, however, and tentative answers as to the effectiveness and costs of particular legal sanctions are becoming available.⁶ Only as knowledge accumulates will guesswork disappear from the task of striking a proper balance between highway safety and other values. Although quick and easy results cannot be expected, the accumulation of useful knowledge is not beyond our capabilities. This Article considers first the general understanding of legal scholars and criminologists regarding the deterrent effect of legal sanctions; a second part summarizes current knowledge concerning the effects of legal sanctions in controlling driver behavior; and a concluding section evaluates briefly the methods available for the development of needed new knowledge.

I. LEGAL SANCTIONS AS A TECHNIQUE OF PREVENTION

A. *Some Definitions*

Before examining the general deterrent effect of legal sanctions, definition of terms used throughout this Article is in order.⁷ The term *prevention* refers to social arrangements or techniques of control that reduce the rate of something society wants to avert. Improved highway design, standards for vehicle performance, and enforcement of traffic regulations are all examples of differing techniques of prevention in the highway safety field.

A *legal sanction*⁸ is a prevention technique that involves the official imposition of consequences (positive or negative) for the purpose of enforcing legal obligations. The term is used in a broad sense to include civil liability, criminal punishment, rehabilitative

5. See generally Andenaes, *The General Preventive Effects of Punishment*, 114 U. PA. L. REV. 949 (1966); Arens & Lasswell, *Toward A General Theory of Sanctions*, 49 IOWA L. REV. 233 (1964); Schwartz & Orleans, *On Legal Sanctions*, 34 U. CHI. L. REV. 274 (1967); F. Zimring, *An Essay on Threat*, 1966 (unpublished manuscript at the University of Michigan Law School).

6. See Andenaes, *supra* note 5; Zimring, *supra* note 5.

7. Similar usage is employed in Andenaes, *supra* note 5, at 949-51; F. Zimring, *supra* note 5, at 1-5.

8. See Schwartz & Orleans, *On Legal Sanctions*, 34 U. CHI. L. REV. 274 (1967).

treatment, grants and benefits, and other methods of applying legal norms to particular individuals.

Deterrent sanctions are forms of legal sanctions involving a governmental command ("do not exceed 30 mph") and a concomitant threat ("or you will be fined ten dollars"). In considering deterrence, it is important to distinguish between "general deterrence" and "special deterrence." *General deterrence*⁹ refers to the influence of the threatened consequence upon the population to whom the legal command is addressed. The term includes the moral, educative, and habitative influence of the legal norm and sanction. *Special deterrence*,¹⁰ on the other hand, refers to the effect of punishment or treatment on the particular person who experiences it. For this individual the legal sanction is no longer a threatened consequence but an actual one. The experience of punishment or treatment may influence his behavior by changing his personality, character, or attitudes. In any event, the general deterrent effect on the punished individual in the future is likely to be different than it is with the remainder of the population: further stigmatization may have less impact since the individual has already been stigmatized; the unpleasant consequences of treatment or privation are viewed as they actually have been experienced rather than as they were perceived in advance of that experience; and, the repetition of violation is commonly met with harsher sanctions than are applied to first-time violators.

B. General Deterrence

Today it is generally accepted by criminologists that revenge and punishment, for their own sake and without regard to the consequences flowing from them, have no place in a rational society.¹¹ The coercive force of the state should be applied in order to channel the behavior of members of society in desired directions. Infliction of suffering, if it does not improve the offender or deter violations, is needless cruelty that should be avoided. It is not suggested that harsh penalties or even terror are necessarily ineffective in shaping behavior. The experience in totalitarian regimes demonstrates that these tactics can be effective.¹² The point is that harsh penalties, if

9. See Andenaes, *supra* note 5, at 949-51.

10. Morris, *Impediments to Penal Reform*, 33 U. CHI. L. REV. 627, 632 (1966). For the special effects of punishment on the individuals who experience it, see D. GLAZER, *THE EFFECTIVENESS OF A PRISON AND PAROLE SYSTEM* 13-35 (1964).

11. Morris, *supra* note 10, at 627-30. See also H. PACKER, *THE LIMITS OF THE CRIMINAL SANCTION* 9-148 (1968).

12. See Andenaes, *supra* note 5, at 964-70.

justifiable at all, serve social purposes *only* if they achieve dramatic results of general or special deterrence.

It is fashionable to argue, starting from the valid premise that the death penalty does not deter murder more than such sanctions as life imprisonment,¹³ that legal sanctions do not have significant deterrent effects.¹⁴ If this were the case a wholesale re-examination and possible abandonment of present controls would be in order, although it is doubtful whether legislators or the general citizenry would be prepared to experiment with a sanctionless society. However, the argument that legal sanctions are ineffective is fallacious, for there is ample evidence that legal sanctions do affect human behavior in desired directions.¹⁵

Psychologists tell us that punishment may effectively modify human behavior under certain circumstances.¹⁶ Punishment is effective in reducing prohibited behavior when motivation to engage in this behavior is low, or, even if it is high, when alternative modes of behavior can be used to reach the desired goal. When punishment is certain and severe, behavior may be modified in some situations even though the behavior involved is highly motivated and alternative modes of behavior are unavailable. Experiments with human and animal subjects also indicate that punishment produces variability in behavior—the punished organism tries a variety of acts until it finds one that is satisfactory. Rewards, on the other hand, lead to consistent behavior—the rewarded act is preferred to other, unrewarded acts. And punishment is much more effective in channeling behavior away from proscribed activity when it is coupled with rewards or other constructive alternatives for engaging in desired activity.¹⁷ The timing of rewards and penalties is also an

13. Norval Morris's careful evaluation of the capital punishment controversy concludes that it is "as well established as almost any other proposition in the social sciences, that the existence or non-existence of capital punishment as a sanction alternative to protracted imprisonment for convicted murderers, makes no difference to the murder rate or the attempted murder rate." Morris, *supra* note 10, at 633. Two qualifications of this conclusion should be noted: First, it cannot be inferred that deterrence is inoperative but only that a difference in punishment (death as against protracted imprisonment) does not affect the murder rate. Second, "general deterrence continues to operate, but in a perhaps unexpected way," in that "the difference of penalty influences peripherally the victim selection process." *Id.*

14. E.g., H. BARNES & N. TEETERS, *NEW HORIZON IN CRIMINOLOGY* 338 (2d ed. 1951): "The claim for deterrence is belied by both history and logic. History shows that severe punishments have never reduced criminality to any marked degree."

15. The best discussion of available evidence is in Andenaes, *supra* note 5. See also Andenaes, *General Prevention—Illusion or Reality?* 43 J. CRIM. L.C. & P.S. 176 (1952).

16. J. DEESE, *THE PSYCHOLOGY OF LEARNING* 135-41 (2d ed. 1958).

17. Lefkowitz, Blake, & Morton, *Status Factors in Pedestrian Violation of Traffic*

important factor since their effectiveness increases as immediacy of application follows the occurrence of the rewarded or prohibited act.

Legal scholars have summarized the reasons why the imposition of a legal sanction may affect the behavior of the population to whom it is addressed.¹⁸ First, the existence of a legal command has a *moral and educative influence*. Many persons want to do what is right, and they are obedient and respectful of the law even when they disagree with its provisions. Second, other persons who are less responsive to moral suasion may be deterred because of *fear* of the consequences of disobedience. They make a rational choice not to engage in contemplated conduct because the risks of apprehension are too great, or the punishment is too severe, or both. This effect will be operative—in fact may be enhanced—by imperfect knowledge of the objective apprehension rate or the severity of the punishment actually meted out to offenders. It is the individual's perception of these factors, rather than the objective circumstance itself, that deters. This offers the possibility that educational campaigns may be used to delude members of the community into believing that legal sanctions are more threatening than they really are. If the community is convinced that "drunk drivers go to jail," when in fact they seldom do, the perceived threat is an important reality—except to those whose experience of the actual punishment process has provided more accurate information. A third and final effect, particularly important in the field of highway safety, rests upon the notion that fear and moral influence, especially if instilled at an early age, may create unconscious inhibitions that make lawful and desired behavior *habitual behavior*. Thus the deterrent effect of legal sanctions is not entirely dependent upon a Benthamite model of rational human behavior—the avoidance of pain and the maximization of pleasure. Legal provisions and their applications may affect even those who are unaware of them. As Professor Andenaes has stated:

Through a process of learning and social imitation, norms and taboos may be transmitted to persons who have no ideas about their origins—in much the same way that innovations in Parisian fashions appear in the clothing of country girls who have never heard of Dior and Lanvin.¹⁹

Signals, 51 J. ABNORMAL & SOC. PSYCH. 704 (1955) (prohibition plus constructive alternatives more effective in changing behavior than prohibition alone).

18. Andenaes, *supra* note 5; Morris, *supra* note 10; F. Zimring, *supra* note 5.

19. Andenaes, *supra* note 5, at 951.

These general deterrent influences are highly variable depending upon such factors as motivation to engage in the prohibited behavior, the personality of the potential offender, and the conflicting norms of groups to which the individual owes loyalty and affection.²⁰ Apart from these general variables, the effectiveness of a legal sanction depends upon two fundamental factors: (1) the perceived risk of detection, apprehension, and conviction; and (2) the severity of the penalty. There is widespread agreement among legal scholars that the first factor is more significant in controlling deviant behavior than the second, although here again differences among persons and social classes may modify this general conclusion. Overly severe penalties engender a rebound effect which reduces deterrence by lowering the conviction rate: enforcement officials, judges, and juries are reluctant to prosecute or convict if the punishment is regarded as too severe for the offense involved.

A point worth emphasizing is that human behavior is profoundly affected by the actor's view of what is respectable. As a result, the law is most likely to have substantial deterrent effects in those situations in which it is able to define for the affected community what is respectable behavior. When the process works, the primary deterrent is the fear of loss of community esteem. Thus the threat of punishment fails to regulate behavior effectively when the forbidden behavior is approved in the relevant community and when no loss of prestige accompanies the imposition of penalties. Examples of this principle are found in juvenile gangs, and, more recently, in situations of conscientious law objection or civil disobedience.

A controlled experiment in the reduction of serious highway accidents involving servicemen at the Lackland Air Force Base in Texas illustrates the potential effectiveness of general deterrence in highway safety.²¹ Military authorities were troubled by the large number of personal-injury accidents involving servicemen driving privately owned automobiles in the vicinity of their stations. A study revealed that excessive drinking was a contributing factor in approximately two thirds of these accidents. After considering and rejecting alternative countermeasures, such as advance screening and counseling of drivers, a prevention program was designed that involved two administratively imposed sanctions: a driver involved in a personal-injury accident was called in for a review of his service record and for a psychiatric examination. An accompanying educa-

20. F. Zimring, *supra* note 5, at 13-21.

21. Barmack & Payne, *The Lackland Accident Countermeasure Experiment*, in *ACCIDENT RESEARCH, METHODS AND APPROACHES* 665 (1964).

tional effort tried to portray driving after drinking as disturbed or "sick" behavior. The effects of the program were studied by comparing accident rates before and after its institution and by comparing the experience at Lackland with the accident rate in the general community and at other bases at which the program was not adopted.

The young Americans involved in this experiment apparently viewed these sanctions (review of service record and psychiatric examination) as threatening; personal-injury accidents involving the affected group declined over fifty per cent in the year following the introduction of the program. Before concluding that this effect had been caused by the prevention program, Professors Barmack and Payne, the investigators in this careful and well-executed experiment, examined and rejected plausible rival hypotheses such as other influences operating in the same direction or a general decline in servicemen's accidents. In fact, during the period in question, accidents continued to rise in the general community and at other military bases. Of course, one cannot generalize from the special population involved in this study—servicemen subject to institutional military control—to the larger civilian population using the highways, but the study demonstrates what sometimes is doubted: that countermeasures can be effective.

The fact that sanctions *may* produce the desired results does not mean, of course, that they *will* necessarily do so, or that the costs and possible side effects may not outweigh any benefits. The application of legal sanctions inevitably involves economic and social costs: enforcement machinery requires substantial expenditures of public funds; each individual to whom sanctions are applied suffers inconvenience, expense, and more intangible losses of self-esteem and repute; and the atmosphere created by enforcement activities may affect the tone of the society—particularly the balance between privacy and official surveillance. Moreover, sanctions may produce negative effects on some individuals from which wholly unintended—and undesirable—consequences may flow. Thus, the existence of a legal sanction or its application may worsen the driving behavior of an antisocial or self-deprecatory person who is none too good a driver to begin with.

The celebrated 1956 Connecticut speeding crackdown illustrates the difficulty of determining whether changes in the legal environment accomplish what they are supposed to accomplish. In late 1955, Governor Ribicoff of Connecticut announced as part of a crackdown on speeders a plan whereby a convicted speeder would have his driver's license suspended for a minimum period of thirty days.

During the first year of the crackdown, highway fatalities in Connecticut declined about twelve per cent, and Governor Ribicoff hailed the program as a success. Professors Ross and Campbell, who with the benefit of hindsight and social science methodology examined the Connecticut experience in detail, concluded that plausible rival hypotheses probably explained the changes hailed by Ribicoff.²² When the fatality rates in Connecticut and in nearby states were plotted over a longer period, it became evident that 1955 (the year prior to the crackdown) was an extremely bad year; the lower fatality rate in 1956 would have been expected in any event as a regression to the mean, since the modest change noted in 1956 was well within normal yearly variation of fatality rates. Moreover, nearby states experienced a similar decline of fatality rates during the same period. Thus it cannot be conclusively established that the Connecticut speeding crackdown reduced highway fatalities. But the data does indicate that the crackdown had other unforeseen consequences, including a dramatic reduction in speeding convictions, a dramatic increase in license suspensions due to speeding, and increased incidence of driving under suspension.²³ The Connecticut legal system apparently made adjustments that reflected the greater seriousness of the speeding offense: fewer drivers were arrested on speeding charges, and of those arrested a substantially larger number were found not guilty.

In short, there is ample evidence that human behavior can be influenced by the application of legal sanctions. The crucial questions that need more specific and detailed answers are: (1) Who can be influenced, under what circumstances or conditions, and to what degree? (2) What costs and side effects do the application of legal sanctions entail? (3) What alternative modes of inducing compliance are available and what results will they produce at what cost?

II. PREVENTION OF UNWANTED DRIVER BEHAVIOR

A. *Parking Regulations*

Legal sanctions have proven to be extremely effective in the enforcement of parking regulations.²⁴ Illegal parking behavior is

22. H. Ross & D. Campbell, *The Connecticut Speed Crackdown: A Study of the Effects of Legal Change*, 1968, at 3 (unpublished report).

23. Professors Ross and Campbell report that license suspensions for speeding, in relation to all suspensions, increased from about 10 per cent to over 25 per cent; that speeding violations, in relation to all traffic violations, decreased from about 18 per cent to about 12 per cent; that arrests for driving under suspension increased dramatically; and that the proportion of speeding violators found not guilty more than doubled. *Id.* at tables 4-7.

24. Chambliss, *The Deterrent Influence of Punishment*, 12 *CRIME & DELINQUENCY*

deterred effectively by consistent application of relatively minor penalties in the form of monetary fines. Increments of either the apprehension rate or the level of fines produce measurable reductions in the incidence of illegal parking. Why is it that very modest sanctions can have such a dramatic effect on human behavior in this context? Parking is a rational activity in which everyone who drives engages. The choice of a particular parking space is controlled largely by considerations of convenience. Free parking near the driver's destination is preferred, but different combinations of paid parking or remote location are available if the cost or inconvenience of nearby parking increases. The parking fine tends to be viewed as a cost of doing business roughly equivalent to a commercial parking fee. If the fine is sufficiently low, or a low apprehension rate effectively reduces the per-unit parking cost, many persons will violate the law rather than use alternatives. There is no intense motivation to engage in the prohibited behavior (contrast the behavior of the worried husband who parks illegally when rushing his pregnant wife to the hospital); other choices generally exist and will be preferred if violation is more costly or inconvenient.

The population that engages in illegal parking is virtually a replication of the entire adult community. Occupational and status groups are included in this population in approximately the same proportions as they are in the community as a whole. In this respect the parking violation is a prime example of a "folk crime"—one with very little moral content in which many members of the community participate. A suggestive study by Professor Ross indicates that as traffic offenses become more serious (along a spectrum from parking to moving violations to reckless driving to drunk driving to negligent homicide), the group of offenders becomes more and more similar in its occupational and status characteristics to the criminal population engaged in offenses against persons and property.²⁵ Similarly, the moral content of traffic offenses increases through the same stages.

B. *Moving Violations*

Although hunch, common sense, and scattered evidence suggest that traffic law enforcement is valuable in controlling driver be-

70 (1966); U. MOORE & C. CALLAHAN, *LAW AND LEARNING THEORY: A STUDY IN LEGAL CONTROL* (1943).

25. ROSS, *Traffic Law Violation—A Folk Crime*, in *ACCIDENT RESEARCH, METHODS AND APPROACHES* 496 (1964).

havior, the magnitude of the likely effect is uncertain.²⁶ Without further research we simply do not know how successful we are in deterring accident-producing driving behavior by penalizing traffic offenders or how the present system of control could be improved.

It is sometimes argued that deterrence is likely to be ineffective in controlling negligent as distinct from intentional behavior and that the complexity of the driving task further limits deterrent possibilities. While the legal command in traffic regulation—sometimes hardly less general than “drive safely”—is a more complex directive than the simple injunction not to do a prohibited act that requires conscious effort (for instance, “do not steal”), this difference does not justify a conclusion that deterrence will necessarily fail. Standards of care are effectively enforced in industry, transportation, and many other contexts by intense policing and meaningful penalties. The improved performance of a basketball player operating under four fouls provides a homely illustration.

Driving, like walking, is an extraordinarily complex activity that soon becomes habitual. The principal role of deterrence is to instill habitual modes of performance in compliance with minimal standards. Presumably if a driver has fallen into bad habits (or failed to develop good ones), a citation for a violation will make him aware of his deficiencies. A more frequent and relatively benign occurrence (the violation) is substituted for the more serious but unlikely hazard (the accident) which nonetheless becomes more likely if bad driving habits are not corrected. Once the driver is aware of his inadequacies, a process of self-correction may take place; over a period of time habitually correct performance may gradually replace the conscious attempt to correct deficiency.

Another argument minimizing the deterrent role of traffic regulation rests upon the strong motivation for personal safety that drivers are thought to possess. Drivers, it is assumed, are aware of the hazards of driving; if they are not deterred by a concern for their own safety or for that of their passengers—to say nothing of the property interest in their vehicles—how can the minor penalties exacted for traffic violations be expected to influence their conduct? Although this argument has some force, it does not preclude the possibility that a substantial group of drivers are deterred by the possible application of legal sanctions. In the first place, a serious accident is an extraordinarily infrequent event from the point of view of the individual driver. A personal injury accident occurs only once in every

26. The available literature is reviewed in A. D. LITTLE, INC., *THE STATE OF THE ART OF TRAFFIC SAFETY* 229-96 (1966).

225,000 vehicle miles; a fatality only once in every 18,000,000 vehicle miles.²⁷ In the driving context the odds of an unpleasant occurrence are more influential in shaping driver behavior than the potential severity of the occurrence.²⁸ Thus, although the consequences of a traffic accident could be staggering, the risk of its occurrence may be so remote as to have little impact on driver conduct. By contrast, even though the chances of detection for particular violations may be low, the public is more aware of the risk of being apprehended for a traffic violation. The consequences of apprehension—confrontation with a police officer, appearance in court, and possible license suspension—are much more visible and immediate than the relatively remote possibility of an accident. Thus, traffic regulation may play a significant role in shaping driver behavior. Even if this were not the case, it would be a mistake to assume too much rationality in the relatively habitual and unthinking behavior that takes place behind the wheel. Just as many smokers ignore warnings of the health hazard of cigarettes,²⁹ drivers may ignore or underestimate the hazards of the road. Concerns of the moment, such as anxiety, shortage of time, and desire to impress peers, may interfere with rational consideration of risks of driving. Individuals who for safety reasons consider such matters as the most appropriate times to drive, routes to be taken, and vehicles to be selected, are likely to be cautious drivers in any event; they are not part of the critical audience to whom the law's command is particularly addressed—those who are inclined to be careless and to violate.³⁰

Some observers believe that effective enforcement of traffic laws is limited by the relatively mild penalties that are invoked for most moving violations. There is little evidence to support this view, however, and the Connecticut experience described above suggests that more severe penalties would be less certain of application because of official and popular resistance.³¹ Moreover, mild threats that involve

27. NATIONAL SAFETY COUNCIL, ACCIDENT FACTS 40 (1968). In 1967 there were 53,400 motor vehicle fatalities in the United States or a rate of 5.47 fatalities per 100,000,000 vehicle miles.

28. Edwards, *We Drive as We Live*, ANALOGY, Spring, 1968, at 20-21.

29. See generally Janis & Feshbach, *Effects of Fear-Arousing Communications*, 48 J. ABNORMAL & SOC. PSYCH. 78 (1953).

30. There is a great deal of inferential evidence to support the proposition that the people who listen to safety messages are likely to be safer drivers to start with. See, e.g., J. MORGAN, I. SIRAGELDIN, & N. BAERWALT, PRODUCTIVE AMERICANS: A STUDY OF HOW INDIVIDUALS CONTRIBUTE TO ECONOMIC PROGRESS 546 (1966).

31. See H. Ross & D. Campbell, *supra* note 22.

some inconvenience and expense, especially when coupled with the increased risk of license suspension under point systems, may have a greater psychological effect on the driver than harsh penalties in the first instance.³² It has also been suggested that the lack of uniformity in the traffic laws of various states may limit the effectiveness of legal sanctions. Although uniformity is undoubtedly of great importance on matters related to driver perception and reaction (road markings, signs, and hand signals), it is not established that the relatively minor differences in detail of traffic laws from state to state have any adverse consequences.³³

Although the deterrent role of legal sanctions cannot be rejected on the grounds discussed above, there is a basis for skepticism concerning the performance of the present system of traffic regulation on two grounds: (1) extremely low apprehension rates and enforcement levels may dilute the potential deterrent effect; and (2) the causal relationship between behavior that results in violations and accidents has not been clearly established.

1. *Low Risk of Apprehension*

In contrast to some crimes, such as burglary, in which a victim almost invariably reports a loss, most traffic violations are never reported to the police. Because a victim is usually lacking, there is no one to prod the police into taking action, provide evidence if a prosecution results, and reinforce the moral aspect of the criminal law. The initiative in detecting and prosecuting traffic offenses must come from enforcement officials themselves; their effectiveness in this endeavor depends upon such factors as the importance assigned to traffic control in relation to other police activities, the number of police officers available for traffic duties, and the organization of the police force.³⁴ One seemingly mundane but important factor that reduces enforcement levels relates to the arrangements for compensating police officers who must testify in court concerning traffic violations. In some communities the arresting policeman is required

32. See, e.g., Janis & Feshbach, *supra* note 29, at 78.

33. See A. D. LITTLE, INC., *supra* note 26, at 229. There is a plausible argument that differences in the definition of traffic offenses may contribute to the more lenient enforcement often encountered by out-of-state drivers since the out-of-stater may claim or possess unfamiliarity with local rules relating to parking, U-turns, and the like.

34. Gardiner, *Traffic Law Enforcement in Massachusetts*, 1968 (unpublished Ph.D. dissertation at Harvard University).

to appear in traffic court during his spare time without compensation. Under these circumstances, an officer may either refrain from writing a ticket altogether or may write one for some lesser offense that does not require a court appearance.

The present system of regulating traffic offenses reflects a relative lack of concern with the individual violation. The objective in police enforcement of traffic laws is not to prevent all deviant behavior but to establish acceptable norms of behavior by creating a feeling of surveillance that will induce the vast majority of drivers to move toward the goal of conformity with the regulations. A reduction in the number and severity of an individual's violations will improve the total operation of the traffic system and reduce the number of accidents. Unlike more serious criminal offenses, such as rape or aggravated assault, incomplete apprehension and selective prosecution are not inconsistent with enforcement objectives and practices.³⁵ The odds of apprehension for a particular violation are indeed very low. An informal study by Professor Sheehe, for example, found that the chance of receiving a speeding citation going more than ten miles per hour above the speed limit on a particular stretch of highway in Michigan was only 1 in 7,600.³⁶ Unless it is assumed that persons actually arrested for traffic violations are habitual offenders whose violation frequency is so high that they are occasionally arrested (not an unlikely hypothesis), there is an element of fortuity in every traffic arrest.

Even if the public dramatically overestimates the chances of apprehension, the perceived risk is at such a low level that the deterrent effect of traffic prohibitions is sharply limited. Scattered evidence indicates that increased enforcement levels will sharply reduce the total number of moving violations for such offenses as speeding.³⁷ As stepped-up enforcement efforts in particular cities or on particular highways become widely known, they tend to have the effect of grouping drivers in those areas around a median speed.

Studies of enforcement levels, relating the intensity of patrol activity to some measure of driver behavior such as the frequency of accidents or traffic violations, are recent developments which promise to provide a rational approach to measuring the costs and benefits of

35. F. Zimring, *Punishment Theory and Traffic Offenders*, April 25, 1966, at 5-6 (unpublished manuscript at the University of Michigan Law School).

36. See A. D. LITTLE, INC., *supra* note 26, at 245.

37. See E. SHUMATE, *EFFECT OF INCREASED PATROL ON ACCIDENTS, DIVERSION, AND SPEED* (1958); Michaels, *The Effects of Enforcement on Traffic Behavior*, 31 *PUBLIC ROADS* 109 (1960); authorities cited notes 38 & 39 *infra*.

traffic regulation. A 1960 report by Irby and Jacobs suggested that a relatively extreme intensification of patrol effort would produce measurable results in terms of more careful driving and thus tend to reduce accident rates.³⁸ An extensive experiment on U.S. 101 north of San Diego, California, involved doubling the state patrol on the road in 1964.³⁹ Although traffic increased 8 per cent during this period, accidents declined 12 per cent and serious accidents declined by more than 20 per cent. Observers operating independently of the enforcement units counted fewer traffic violations after the change than before. An important collateral benefit of intensified patrol is hastened official response to accidents, a significant factor in reducing rural fatalities.

There is so much driving behavior, and it is so dispersed in time and space, that traffic police, using present methods of surveillance and enforcement, face a virtually insurmountable task. Periodic campaigns and selective enforcement schemes are designed to give the public the impression that the objective apprehension rate is much higher than it actually is. Such activities as using empty police cars, dummy radar boxes, and cardboard policemen have a *Beau Geste* quality that may achieve modest results if not overused, but little precise information about the effects of these schemes is presently available. Further study of the effect of enforcement levels on accidents, violations, and driver behavior is essential. Existing research information pertains almost entirely to interstate highways, roads that have the lowest accident rates in any event. Effective enforcement on secondary roads and in urban traffic patterns may require radically different approaches and strategies; what these approaches should be, however, remains unclear. In view of the high cost of patrol activities and the desirability of minimizing the citizen's confrontations with police authority, the development of automated techniques of detecting violations, warning drivers, and using records of adverse performance to identify drivers in need of further education may offer substantial promise.

2. *Relation of Violations to Accidents*

Traffic laws are designed to prohibit unsafe driving behavior that is likely to result in accidents. Although safe driving can be

38. *An Epidemiological Approach to the Control of Automobile Accidents: Experimental Patrol Intensification at a Military Base*, 4 TRAFFIC SAFETY RESEARCH REV. 4 (March 1960).

39. Crittenden, *Operation 101*, THE POLICE CHIEF, Jan. 1966, at 8.

demonstrated and operationally defined, what constitutes safe driving is enormously complex and variable. Driving behavior that is safe on a clear, dry, uncongested highway in a vehicle in top condition may be unsafe if one of these factors is varied. The attempt to provide simple and understandable norms in defining traffic offenses creates the risk that violation-producing behavior may be imperfectly correlated with accident-producing behavior.

Efforts to enforce arbitrary speed restrictions illustrate this difficulty. Speed is presumably regulated largely because it is related to the driver's ability to control his vehicle. Yet many other factors, not reflected in the enforcement of speed limits, affect this ability. On a wet pavement, for example, a vehicle with bald tires may require a stopping distance half again as great as a similar vehicle equipped with tires having an adequate tread pattern. Appropriate driving speeds depend not only upon weather, light, and road conditions, but also upon vehicle and driver condition. Drivers are aware that they can drive safely on many highways at speeds considerably in excess of the established limits, particularly at times when traffic is light and weather conditions are excellent. While enforcement of unrealistic speed limits on such occasions may reduce average speeds, it is questionable whether such enforcement reduces the frequency of accidents. If reduced speeds are enforced under conditions of poor visibility, slippery surfaces, or highway congestion—where speed is more closely correlated with the occurrence of accidents—the frequency and severity of accidents are probably reduced; but the magnitude of these effects, if any, has not been established. A study of college students, for example, showed no correlation between speeding citations and accident rates.⁴⁰ Other data indicate that drivers who have committed no traffic offenses are involved in a substantial fraction (one third) of all accidents and that many drivers who have repeated violations have never been involved in an accident.⁴¹

More generally, a number of studies have found that drivers who have more citations also tend to be involved in more accidents.⁴² The relationship of accidents and traffic violations, however, remains somewhat obscure. Most of the studies relating accidents to citations have failed to correct for the fact that a high proportion of reported

40. Stewart, *Reported Driving Speeds and Previous Accidents*, 41 J. APPLIED PSYCH. 293 (1957).

41. R. COPPIN & R. PECK, *THE 1964 CALIFORNIA DRIVER RECORD STUDY* pts. 4, 6, 7 (1965).

42. See A. D. LITTLE, INC., *supra* note 26, at 245-47.

accidents results in one of the drivers receiving a moving violation, a factor that tends to correlate accidents with violations in any event. In the few instances in which this correction has been made, as in a series of California studies using statewide data,⁴³ the possibility that the relationship between accidents and violations arises because of increased exposure to the road has not yet been negated: it may be that many drivers have more citations and more accidents simply because they drive more miles than most other drivers. Thus, it has not been conclusively established that driving behavior which leads to traffic violations also leads to accidents. There is an urgent need for more reliable information concerning the relationship among violations, citations, and accidents, not only as a general proposition but with respect to specific kinds of violations. Enforcement activity should be directed at behavior that is likely to make a difference in terms of accident prevention and not merely at such easily detected behavior as modest speeding on open roads in clear weather.

C. *Drunk Driving*

It is now well established that alcohol impairs driving ability; that the extent of impairment is related to the amount consumed; and that the occurrence and severity of highway accidents is directly related to the consumption of alcohol by drivers.⁴⁴ Blood tests performed on fatally injured drivers in the United States indicate that 60 to 75 per cent of them have blood alcohol concentrations of 0.05 per cent or more; and that 40 to 50 per cent of fatally injured drivers attain concentrations of 0.15 per cent or more.⁴⁵ The much lower incidence of drinking among nonaccident drivers exposed to

43. See, e.g., R. COPPIN, A. LEW, & R. PECK, *supra* note 41, pt. 7 (1966).

44. See generally Cramton, *The Problem of the Drinking Driver*, 54 A.B.A. J. 995 (1968); Haddon, *Alcohol and Highway Accidents*, in PROCEEDINGS OF THIRD INTERNATIONAL CONFERENCE ON ALCOHOL AND ROAD TRAFFIC 3 (1962); McFarland, *Alcohol and Highway Accidents—A Summary of Present Knowledge*, TRAFFIC DIGEST & REV., May, 1968, at 30.

45. R. BORKENSTEIN, R. CROWTHER, E. SCHUMATE, W. ZIEL, & R. ZYLMAN, *THE ROLE OF THE DRINKING DRIVER IN TRAFFIC ACCIDENTS* (1964); Haddon & Bradess, *Alcohol in the Single Vehicle Fatal Accident*, in ACCIDENT RESEARCH, METHODS AND APPROACHES 208 (1964); McCarroll & Haddon, *A Controlled Study of Fatal Automobile Accidents in New York City*, in ACCIDENT RESEARCH, METHODS AND APPROACHES 172 (1964); Schmidt & Smart, *Alcoholics, Drinking and Traffic Accidents*, 20 Q. J. STUDIES ON ALCOHOL 631 (1959).

In order to reach a blood alcohol level of 0.15 per cent, a 150-pound man must consume at least 7 ounces of 80 proof whiskey in one hour. See Greenberg, *The Pharmacology of Alcohol and Its Relationship to Drinking and Driving*, Q. J. STUDIES ON ALCOHOL, May, 1968, supp. no. 4 at 252, 258.

the same risks provides strong evidence that the risk of accident-involvement increases as blood-level concentration increases.⁴⁶

The identification of alcohol as a leading factor associated with automobile accidents (especially of the more serious variety) warrants vigorous methods of regulatory control. In theory, at least, American states have adopted methods of strict control: criminal prohibitions against drunk driving carry relatively severe penalties;⁴⁷ presumptions of intoxication based on chemical tests facilitate proof;⁴⁸ and implied consent statutes adopted in a growing number of states require the driver, on pain of losing his license, to submit to a chemical test of intoxication.⁴⁹ Nevertheless, the feeling persists that enforcement is lax in the United States and that the potential effectiveness of legal control has not been achieved. There is greater uncertainty whether the path to improvement lies in increasing the apprehension and conviction rates, or modifying the severity of the penalty, or both.

1. *Increasing the Apprehension Rate*

Effective deterrence requires a belief on the part of those who drive when intoxicated that violators stand a good chance of being detected and, once detected, punished. In this respect drunk driving, like other traffic offenses, falls far short of the ideal. There is simply too much human behavior to be effectively watched—millions of drinking drivers on thousands of miles of highway night and day around the clock. Enforcement officials, relatively few in number, employ periodic campaigns of selective enforcement such as holiday drives, but the odds of the drinking driver being apprehended are minuscule when compared to the total number of violations.

Legal control of the drinking driver is also limited by the en-

46. R. BORKENSTEIN, R. CROWTHER, E. SCHUMATE, W. ZIEL, & R. ZYLMAN, *THE ROLE OF THE DRINKING DRIVER IN TRAFFIC ACCIDENTS* (1964).

47. In 1966 a conviction for driving while intoxicated *required* mandatory revocation or suspension of the driver's license for a year or more in twenty states and for varying lesser periods in twenty-four states and the District of Columbia. In six states such a conviction *permitted* but did not require revocation or suspension. AUTOMOBILE SAFETY FOUNDATION, *SUSPENSION AND REVOCATION OF DRIVERS' LICENSES* 13 (rev. ed. 1966).

48. See UNIF. VEH. CODE § 11-902 (rev. ed. 1962).

49. Twenty-eight states had adopted implied-consent legislation as of early 1968. NATIONAL SAFETY COUNCIL, *ACCIDENT FACTS* 52 (1968). See generally R. DONIGAN, *CHEMICAL TESTS AND THE LAW* (1957); Donigan, *Chemical Test Law in the United States*, *TRAFFIC DIGEST & REV.*, April, 1966, at 21-23. A model statute is proposed and discussed in Note, *A State Statute To Prevent the Operation of Motor Vehicles by Persons Under the Influence of Alcohol*, 4 HARV. J. LEGIS. 280 (1967).

forcement techniques that may be employed.⁵⁰ In the United States a driver generally may not be stopped and asked to submit to a chemical test of intoxication unless observably deviant driving behavior such as speeding, weaving, or lane changing provides probable cause for an arrest.⁵¹ Moreover, unlike the techniques employed under recent legislation in Great Britain,⁵² the patrol car usually is not equipped to permit officers to make a simple breath test for intoxication; rather, the police officer must make a visual determination of intoxication before taking the suspect to the station house for a chemical test. Since the statutory presumption in most states is set at a relatively high level (0.15 per cent blood alcohol) and the policeman must expend energy to bring the suspect in and book him whether or not he is able to pass the test, the operational pressures are toward a conservative judgment of intoxication. There are grounds for thinking that in the United States only cases of extreme intoxication lead to convictions for drunk driving.⁵³

There is some reliable evidence from Scandinavia and now Great Britain that improved enforcement of prohibitions against drunk driving would reduce accidents.⁵⁴ In Norway, for example, where drivers found to have a blood alcohol level in excess of 0.05 per cent are regularly given short jail sentences, Professor Andenaes reported that fewer than four per cent of the drivers involved in fatal accidents in 1960 were found to be driving under the influence of alcohol.⁵⁵ Since the corresponding figure in the United States for a

50. See Borkenstein, Trubitt, & Lease, *Problems of Enforcement and Prosecution*, in *ALCOHOL AND TRAFFIC SAFETY* 137 (1963).

51. The authority of a police officer to arrest without a warrant is generally limited to situations in which a misdemeanor is occurring in the officer's presence. See generally W. LAFAVE, *ARREST* 231-43 (1965). Since the police officer must have reason to believe that an offense has been committed, deviant behavior or its accident consequences must usually have been observed by the officer. The requirement imposed on a driver by implied-consent statutes to submit to a chemical test of intoxication is also usually limited by some sort of "reasonable cause" determination by the officer. See, e.g., MICH. COMP. LAWS § 257.625c (Supp. 1968): A driver must submit to a chemical test "at the request of a law enforcement officer having reasonable grounds to believe the person was driving a vehicle upon the public highways . . . while under the influence of intoxicating liquor."

52. Road Safety Act of 1967, c. 16.

53. Hyman, *The Social Characteristics of Persons Arrested for Driving While Intoxicated*, Q. J. STUDIES ON ALCOHOL, May, 1968, supp. no. 4 at 252; Selzer, Payne, Gifford, & Kelley, *Alcoholism, Mental Illness and the "Drunk Driver"*, 120 AM. J. PSYCH. 326, 326-31 (1963).

54. See generally Goldberg, *Drunken Drivers in Sweden*, in PROCEEDINGS OF SECOND INTERNATIONAL CONFERENCE ON ALCOHOL AND ROAD TRAFFIC 112-27 (1955); Christie, *Scandinavian Experience in Legislation and Control*, in THE LEGAL ISSUES IN ALCOHOLISM AND ALCOHOL USAGE 101-22 (1965).

55. Andenaes, *The General Preventive Effects of Punishment*, 114 U. PA. L. REV. 949, 969 n.39 (1966).

much higher level of impairment (0.15 per cent rather than 0.05) is at least ten times as large, it seems likely that strict regulatory control has reduced the incidence of driving after drinking.

Personal accounts from individuals familiar with Scandinavian enforcement practices attest that strict enforcement has affected attitudes and behavior. As Professor Andenaes has stated:

The awareness of hazards of imprisonment for intoxicated driving is in [Norway] a living reality to every driver, and for most people the risk seems too great. When a man goes to a party where alcoholic drinks are likely to be served, and if he is not fortunate enough to have a wife who drives but does not drink, he will leave his car at home or he will limit his consumption to a minimum. . . . [T]he legislation has been instrumental in forming or sustaining the widespread conviction that it is wrong, or irresponsible, to place oneself behind the wheel when intoxicated.⁵⁶

There are, however, several reasons for doubting whether the Scandinavian experience is fully transferable to the American scene. First, alcoholism has been such a serious problem in the Scandinavian countries that public attitudes toward alcoholics are very different than in the United States. There is a strong, publicly supported temperance movement, and problem drinkers are subjected to a degree of surveillance undreamed of in the United States.⁵⁷ Second, legislative proscription of driving after drinking was adopted in Scandinavia many years ago when drivers were still a small minority of the population. Strict regulation became accepted and shaped public attitudes before driving became a mass phenomenon. The sudden introduction of new rules in America's highly motorized society—one in which the private car plays dual roles of necessary transportation and ego gratification—is likely to encounter greater popular and official resistance. Finally, on the basis of the sketchy data now available, it remains uncertain whether *severe* penalties are crucial to effective enforcement of the drunk-driving laws. Even if they are crucial, it is questionable whether a potential improvement in highway safety is worth the resultant restrictions on personal liberty and the sufferings inflicted on punished drivers and their families.

In Sweden, for example, over one half of the persons sentenced to prison are convicted of alcohol-related traffic offenses.⁵⁸ Moreover,

56. *Id.* at 969.

57. See Christie, *Temperance Boards and Inter-Institutional Dilemmas: A Case Study of Welfare Law*, 12 *SOCIAL PROBLEMS* 415 (1965).

58. Klette, *Effects of Legislation Concerning Drunken Driving in Sweden*, in *PRO-*

there appear to be social class differences in the deterrent effect of the severe sanctions. Members of the upper classes, who have other means of transportation and whose stake in society is threatened by the severe punishment, generally conform to the law's command; convicted violators tend to come from the lower classes and from special groups, such as single males, whose alternatives are more limited. Sanctions capable of effectively controlling these lower-class and special groups may be more difficult to design than sanctions effective against the upper classes. The intractability of the problem, at least with some segments of the population, does not argue that control measures are not worthwhile. It is merely emphasized that the differential effects on various groups and social classes should not be overlooked when deciding on countermeasures. It would be anomalous, for example, in this day of positive public effort to release Negro citizens from cycles of poor education, low employment opportunity, and slow social advance, to employ repressive measures in the highway safety field that bear down most heavily on these same persons.

2. *Overly Severe Penalties*

The relationship between legal sanctions and social attitudes is a complex one. If penalties are viewed as excessive, the effectiveness of the legal sanction may be reduced because of public authorities' reluctance to convict. No law can be effectively enforced in a democracy unless the public shares the values and premises upon which that law is based; our experiment with a drastic form of liquor control—prohibition—demonstrated that. With respect to drinking-driving, there is widespread agreement that this behavior is a problem and that highway safety is an important value. The value is not viewed in isolation, however, but in relation to conflicting values. Thus, when balanced against the need to control drinking-driving, the individual's desire to use his vehicle as an extension of his personality or to engage in pleasurable activity such as partying or drinking may well be preferred by a large portion of the populace. The ubiquitous nature of drinking-driving increases sympathy for those who are caught and pushes police, prosecutors, courts, and juries toward a lenient approach. The stringent nature of the penalties adds to this pressure towards leniency. In the abstract the

public believes that a drunk driver should lose his license; but in the concrete individual situation involving a person who is thought to be like everyone else and who needs a license for work and pleasure, the punitive attitude softens. In fact, the usual drunk driver may be pathologically very different than the ordinary social drinker, but the public either does not realize this or ignores it. The reaction of the ordinary juror is likely to be: "We all live it up once in a while; only he was unfortunate enough to get caught."

Consider the experience in Michigan over the last ten years:⁵⁹ fatalities have increased by 50 per cent; reported accidents have doubled; the number of traffic officers, drivers, and vehicle miles has increased rapidly. Yet arrests and convictions for drunk driving have steadily declined. In 1957 there were 2,673 arrests for drunk driving and 2,144 convictions; in 1966 these figures had fallen to 1,878 arrests and 1,357 convictions. Moreover, of those charged with drunk driving in Michigan in 1966, only 72 per cent were convicted on the original charge; nearly 10 per cent accepted a plea for a lesser offense not involving license suspension; the remainder were either acquitted or their cases are still pending. Data contained in a 1961 speech by the attorney general of California suggest that public attitudes in California at that time did not favor strict legal control of drinking-driving:⁶⁰ of a group of more than 1,000 drivers who killed someone while driving under the influence of alcohol, only one fourth were convicted of the felony of drunk driving, and fewer than 5 per cent were sent to jail.

Enforcement officials tend toward the view that the drunk-driver problem can be handled by more and better enforcement: more traffic police, better detection techniques such as roaming check lanes and wholesale breath-testing, and stricter penalties. While better detection techniques should definitely be explored, it is doubtful that increasingly severe penalties will accomplish anything barring a monumental—and unlikely—change in public attitudes. The regulatory control of drinking-driving in the United States is rather lax precisely because the social climate does not favor more stringent controls. Stiffer penalties will merely lead to more difficulty in enforcement. Arguably, legal sanctions would be more effective if better detection techniques were combined with more modest

59. Letter from Captain Dan A. Downer, Safety and Traffic Division, Michigan State Police, to the author, July 13, 1967.

60. Fort, *Drinking and Driving in California and the United States*, in PROCEEDINGS OF THIRD INTERNATIONAL CONFERENCE ON ALCOHOL AND ROAD TRAFFIC 339 (1963).

penalties. Periodic and random breath-testing of drivers would enhance detection of the drunk driver; and this approach might be politically and constitutionally acceptable if combined with reduced penalties. One possible approach is as follows. Traffic officers would stop and check random samples of drivers on a scientific basis. If a breath test showed a blood-level concentration above 0.08 per cent, the driver would be considered dangerous and driven home in a police car. If the driver's car was not a traffic hazard in its existing location, it would be left there; otherwise it would be impounded. When the driver sobered up the next morning he would face the inconvenience of retrieving his car. Instances of violation would be reported to state licensing officials and noted on the driver's record. If caught three or more times, the licensing officials would require him to report for treatment as a "problem drinker" or face losing his license. The system would operate completely without criminal penalties: the embarrassment of being driven home in a police car and the inconvenience of retrieving one's vehicle would be the exclusive "civil" penalties; treatment for the problem drinker would be enforced by possible license suspension.⁶¹

3. *Addicted Persons—The Problem Drinker*

Until recently, it has been assumed that, since the majority of persons who use alcohol are "social drinkers," most of the accidents in which alcohol is a factor involve driving after social drinking. This assumption is now questioned by a number of responsible investigators who assert that pathological drinking accounts for the larger part of alcohol-related accidents.⁶² A detailed retrospective study of the personality and drinking behavior of a small group of fatally injured drivers revealed an astonishingly large proportion of problem drinkers.⁶³ Other studies indicate that few social drinkers attain the elevated blood alcohol levels (in excess of 0.15 per cent) so frequently found among serious- and fatal-accident victims. Although the dispute over whether social drinkers or alcoholics account for the majority of alcohol-related accidents cannot be resolved on exist-

61. A similar suggestion for a civil and regulatory approach to the drunk driver is made in H. PACKER, *THE LIMITS OF THE CRIMINAL SANCTION* 251-56 (1968).

62. See, e.g., Schmidt, Smart, & Popham, *The Role of Alcoholism in Motor Vehicle Accidents*, 6 *TRAFFIC SAFETY RESEARCH REV.* Dec. 1962, at 21; Selzer, *Automobile Accidents and the Alcoholic Personality: An Unrecognized Dilemma*, 39 *MICH. ST. B.J.* 12 (1960); Selzer, Payne, Gifford, & Kelley, *Alcoholism, Mental Illness and the "Drunk Driver"*, 120 *AM. J. PSYCH.* 326 (1963).

63. Selzer & Weiss, *Alcoholism and Traffic Fatalities: Study in Futility*, 122 *AM. J. PSYCH.* 762 (1966).

ing data, it is likely that both groups make a substantial contribution to the drinking-driving problem. Enough is known at present to cast doubt upon the simple dichotomy between social drinkers and alcoholics. A more sophisticated classification of drinkers, involving the reasons why they drink and the setting in which they drink, is needed. The social context of drinking, the social class of the drinker, the pathological character of his behavior, and the interplay between the individual's behavior pattern and his personality are factors that need to be considered.

The probable presence of a substantial group of addicted persons in the offending population raises several questions relevant to the effectiveness of legal sanctions in this area. First, it is sometimes argued that sanctions will not have the intended deterrent effect with problem drinkers, since they are supposedly incapable of rational or conscious choice.⁶⁴ The difficulty with this argument is that the prohibition against driving after drinking does not require an alcoholic to stop drinking, but merely to do his drinking under circumstances in which it is not necessary for him to use an automobile. That choice, made prior to the commencement of drinking, may be consciously influenced by the imposition of legal sanctions. Admittedly, however, legal sanctions will probably operate less effectively as the behavior involved is habitual, addictive, or pathological. For this reason, the presence in the offending group of a substantial number of problem drinkers has important implications for the design of the regulatory system. Punishment may well be less effective in shaping the behavior of such persons. Apprehension of alcoholics may serve to identify them; but if rehabilitation is to occur, addicted persons must be separated from social drinkers and adequate treatment facilities provided for them. Further knowledge is desperately needed if we are to deal satisfactorily with the phenomenon of the problem drinker. Moreover, once attention is focused on attempted solutions, public support will be essential if any system of legal sanctions is to be effective.

64. See *Powell v. Texas*, 392 U.S. 514 (1968), in which the Court held that prosecution for public drunkenness did not violate the cruel and unusual punishment clause of the eighth amendment. Justice Fortas, writing for four dissenting Justices, while concluding that a chronic alcoholic may not be punished for public drunkenness because of his inability to control his actions, distinguished the drunk-driving situation: "Such offenses require independent acts or conduct and do not typically flow from and are not part of the syndrome of the disease of chronic alcoholism." 392 U.S. at 559 n.2.

D. *Civil Liability—The Negligence and Insurance Systems*

The general deterrent effect of civil liability is much discussed but little understood. Many legal scholars appear to feel that any such deterrent effect is a small one, but there is no unanimity of opinion.⁶⁵ In the absence of empirical knowledge, the following hypotheses seem plausible: (1) The widespread use of various kinds of insurance insulates the negligent driver from the economic consequences of an accident. As a result, although some may wish to avoid legal proceedings or insurance cancellation, fear of liability by itself does not constitute a substantial deterrent. (2) An accident, as mentioned earlier, is a more remote consequence than apprehension for a traffic violation; civil liability is even more distant from the concerns of thoughtless and imprudent drivers. Individuals who are not deterred by enforcement of traffic regulations nor by a concern for their own safety are unlikely to be deterred by potential civil liability arising out of such an accident. (3) The current liability system offers to the driver only the general admonition to "drive safely"—advice which is not specific enough to inculcate good driving habits and weed out bad ones. Moreover, to the driver who experiences civil liability, the adversary and admonitory tone of settlement negotiations and proceedings may harden him in the self-righteous belief that he is a good driver and the "other fellow" is to blame. Consequently, he is unlikely to learn anything from the experience that will improve his driving in the future.

The deterrent effects of civil liability, whatever their magnitude, are more likely to be reflected in the operation of the automobile insurance system than in the imposition of money judgments. The traffic violation or accident that triggers a dramatic increase in a driver's insurance rate may encourage him to improve his record in order to regain a lower rate. As it becomes known that bad driving records result in higher insurance costs, a general deterrent effect may result. Upward or downward variation of insurance rates predicated on driver behavior may also release family pressures that otherwise might not be operative: if substantially higher insurance costs result, a teenager's fender-denting may lead to forms of parental supervision regulating the amount and manner of his driving.

The insurance system also offers opportunities to encourage

65. Compare Blum & Kalvan, *The Empty Cabinet of Dr. Calabresi: Auto Accidents and General Deterrence*, 34 U. CHI. L. REV. 239 (1967) with Calabresi, *Fault, Accidents and the Wonderful World of Blum and Kalven*, 75 YALE L.J. 216 (1965).

desirable conduct by utilizing rewards in addition to penalties. Psychologists tell us that conformity to particular standards of behavior is enhanced if, in addition to penalizing improper responses, proper responses are rewarded.⁶⁶ An insurance system which places the costs of hazardous driving behavior on those who engage in it tends to reward good drivers and punish bad ones. If bad drivers were required to bear the full costs of their activities, few could afford adequate insurance coverage and some might be removed from the road. However, the pressures of insurance regulation tend to be egalitarian in nature, and it would be unrealistic to suppose that any substantial portion of the populace could be kept off the roads on the basis of prohibitive insurance rates. Even if such extreme measures are not feasible, modest steps such as merit-rating plans and safe-driver rebates, in effect in Great Britain for many years and increasingly popular in this country, offer deterrent possibilities that should receive further study.

E. *Rehabilitation of the Problem Driver*

The educative and habituating effects of traffic laws on the general driving population should be distinguished from the impact which apprehension has on the individual offender. The latter effect is often referred to as special prevention or *special* deterrence to distinguish it from *general* deterrence.⁶⁷ Except for a small number of serious traffic offenses such as drunk driving, negligent homicide, and driving after license suspension, punishment will usually consist of the imposition of fines and costs on the violator. Moreover, under point systems now in operation in several states, licensing officials may take disciplinary action when violation or accident records attain certain levels.⁶⁸

Traffic courts play a major role in present programs of driver rehabilitation, but their effectiveness is subject to question. The Traffic Court Program of the American Bar Association has sought, in conjunction with state and federal authorities, to upgrade the quality of traffic-court justice.⁶⁹ One objective of the program is to

66. See notes 16-17 *supra* and accompanying text.

67. See notes 9-10 *supra* and accompanying text.

68. See, e.g., MICH. COMP. LAWS §§ 257.320, 257.320a (1965 & Supp. 1968).

69. See J. ECONOMOS, REPORT TO THE AMERICAN BAR ASSOCIATION STANDING COMMITTEE ON TRAFFIC COURT PROBLEM, TRAFFIC COURT PROCEDURE AND ADMINISTRATION (1961); J. ECONOMOS, REPORT TO THE AMERICAN BAR ASSOCIATION STANDING COMMITTEE ON TRAFFIC COURT PROBLEM, THE TRAFFIC PROBLEM, TRAFFIC LAW, AND TRAFFIC COURTS (1957).

ensure that a traffic offense of any seriousness will lead to a court appearance in which a judge, a prosecuting attorney, a police witness, and the suspect will consider the accusation with dignity and fairness. The underlying premise is that an adjudication of guilt under such circumstances will have an educative influence on the offender; moreover, it may increase his respect for the legal system in general. However, it seems doubtful that traffic court adjudications will have these intended effects. The required court appearance increases the inconvenience and severity of the apprehended driver's confrontation with legal authority; whether or not he is found guilty, he may find the experience irritating. Costs to the public in terms of working time lost and to the police in requiring the attendance of the arresting officer are substantial. Unless the driver is provided with free counsel and given a fair opportunity to defend—an outcome that we hardly want to stimulate artificially given the high cost of such proceedings and their small stakes—the proceeding may appear to the driver as one in which the traffic policeman's word is always accepted in preference to his own. Placing the driver in the position of defending his conduct may lead him to rationalize his behavior rather than consider his driving defects objectively. Moreover, traffic courts are not ordinarily equipped to offer the offender specific assistance that may improve his future driving skills. Even if traffic courts can achieve an educative influence on drivers superior to that achieved by comparable systems of control, it is not clear that the benefits in accident reduction outweigh the undesirable collateral consequences. These doubts, however, are not supported by empirical data. The effectiveness of traffic court programs in rehabilitating drivers has never been adequately demonstrated, to the author's knowledge, and no information is presently available. The possible shortcomings suggested above therefore constitute appropriate subjects for future investigation.

The rehabilitative value of driver improvement programs is also somewhat questionable. Motor vehicle licensing authorities in most states administer substantial programs aimed at correcting the habits or improving the capabilities of errant drivers. The effort—directed primarily at drivers who have accumulated a certain level of violations or accidents—is designed to educate and to change basic attitudes. Research into the effectiveness of various kinds of driver improvement programs, however, is not particularly heartening. Some studies indicate that drivers who are sent a warning letter (especially a cordial and personalized one) do have somewhat better records

than similar drivers who do not receive such letters.⁷⁰ But further educative efforts such as individual counseling sessions, group therapy, and "scare" movies have been largely ineffective.⁷¹ A New York study, for example, concluded that "neither of the practical measures of driver improvement—accident and violation reduction—appear to be much affected by conventional driver improvement efforts."⁷² While drivers who are identified as needing rehabilitation do tend to improve their driving habits with time (perhaps as a result of greater maturity), the imposition of a driver improvement program does not appear to have a significant impact on the rate of improvement. It may be concluded that "a person drives as he lives"; a few sessions with a driver improvement analyst will not affect deep-seated personality traits and attitudes.

More experimentation with various rehabilitative techniques is necessary in order to devise more effective driver improvement programs and to determine whether benefits outweigh costs. It is possible that the most economic means of improving driver habits is to raise apprehension rates by employing more policemen and better detection methods. But given the crying need for other uses of police in our troubled society, resulting benefits from increased enforcement activity must also be weighed in the light of broader social considerations.

The ultimate sanction of licensing authorities is the withdrawal of a driver's license. The sanction is somewhat perverse in that a driver can hardly be expected to improve his skills while legally unable to drive.⁷³ The unstated premise of licensing authorities is that problem drivers have bad attitudes rather than poorly developed skills and that a more serious punishment will encourage them to approach driving in a more responsible manner. Whether or not

70. See M. CHALFANT & G. KING, STUDIES ON THE EFFECTIVENESS OF DRIVER IMPROVEMENT PROCEDURES (1960); Campbell, *The Effects of Driver Improvement Actions on Driving Behavior*, in ACCIDENT RESEARCH, METHODS AND APPROACHES 638 (1964); Kaestner, War moth, & Syring, *The Effectiveness of Warning Letters in Driver Improvement*, 67 TRAFFIC SAFETY RESEARCH REV. 67 (1967).

71. Campbell, *supra* note 70; R. Coppin, W. Marsh, & R. Peck, A Re-Evaluation of Group Driver Improvement Meetings, 1965 (a report to the Cal. Dept. of Motor Vehicles); O. SCHUSTER, EVALUATION OF THE EFFECTIVENESS OF DRIVER IMPROVEMENT CLASSES FOR PROBLEM DRIVERS (1965). But cf. Henderson & Kule, *New Jersey Driver Improvement Clinics: An Evaluation Study*, 67 TRAFFIC SAFETY RESEARCH REV. 98 (1967); Kaestner & Syring, *Accident and Violation Reduction Through Brief Driver Improvement Interviews*, 67 TRAFFIC SAFETY RESEARCH REV. 99 (1967).

72. B. Scott, New York State's Study of the Effect of Group Sessions on Persistent Violators, 1967 (report of a discussion occurring at the Am. Assn. of Mot. Veh. Admin. Workshop).

73. See F. Zimring, Punishment Theory and Traffic Offenders, April 25, 1966, at 18-20 (unpublished manuscript at the University of Michigan Law School).

this premise is sound, it is fairly certain that many individuals whose attitude toward driving was unresponsive to earlier and lighter treatment will also be unwilling to sit out a period of license suspension. Although more accurate data are needed, there are some indications that a large majority of persons whose licenses are suspended or revoked continue to drive.⁷⁴ Even if that is the case, of course, suspension may have demonstrable effects: individuals driving under suspension may limit their driving in amount, or they may drive more carefully because of the likelihood of harsh treatment if they are apprehended.

III. RESEARCH METHODS

This survey of the state of the art of traffic safety indicates that we do possess some useful knowledge concerning the deterrent effects of attempts to regulate driver behavior through legal sanctions. In addition to putting this knowledge to better use, we now need to fill in some of the gaps in our present understanding by creatively analyzing available data and by conducting controlled experiments.⁷⁵

A. *Comparisons in Time and Space*

Regulatory approaches to highway safety vary considerably from state to state, and changes in legal control can be pinpointed in time within a given state. Thus, the effects of a particular regulation may be evaluated either by comparing the experience in several states with differing regulations at one time or by comparing the results before and after the institution of the new regulation in a single state. The pitfalls encountered in this type of research are treacherous indeed; but the difficulties of the task should not divert the attention of social scientists from the payoff that ingenuity in the use of data can produce.⁷⁶ For example, the effectiveness of motor vehicle inspection is a problem that cries out for definitive study. What vehicle defects contribute to the occurrence of accidents? Can these defects be corrected by techniques of motor vehicle inspection? Are the benefits in accident reduction worth the costs, direct and

74. R. Coppin & G. Van Oldenbeck, *Driving Under Suspension and Revocation*, 1965 (a report to the Calif. Dept. of Motor Vehicles).

75. For general discussion of research methodology in the legal context, see Morris, *Impediments to Penal Reform*, 33 U. CHI. L. REV. 627, 645-55 (1966); Andenaes, *supra* note 55, at 973-78; Lempert, *Strategies of Research Design in the Legal Impact Study: The Control of Plausible Rival Hypotheses*, 1 L. & SOC. REV. 111 (1967).

76. See Campbell & Stanley, *Experimental and Quasi-Experimental Designs for Research on Teaching*, in *HANDBOOK OF RESEARCH ON TEACHING* 204 (Gage ed. 1963); Lempert, *supra* note 75.

indirect, of the inspection program? This series of questions is now receiving detailed study, and when the data become available, analysts must avoid the temptation of drawing simple-minded conclusions from data comparing various states. For some time much was made of the fact that mileage fatality rates tended to be somewhat lower in states with motor vehicle inspection than in states without it.⁷⁷ However, plausible rival hypotheses were not thoroughly examined; it may be that these small differences were due to other factors, such as greater urbanization and denser population in the inspection states, or better enforcement of vehicle equipment regulations apart from inspection. Studies by the Highway Safety Research Institute at the University of Michigan are now under way to compare the condition of important pieces of equipment, such as lights and brakes, in matched samples of vehicles drawn from areas with and without inspection programs. Tentative conclusions indicate that defects which the owner cannot easily detect or which he is unaware are safety hazards are caught by motor vehicle inspection.⁷⁸ For example, owners tend to take care of headlights and taillights on their own; the proportion of cars running with a missing headlight or taillight is fairly uniform over the states without regard to inspection. On the other hand, enforcement activity and inspection has a startling effect in reducing the number of broken taillight lenses.⁷⁹ The data also indicate that motor vehicle inspection has a differential effect depending on the economic class of the driver. Inspection tends to improve older vehicles driven by poorer persons who are either oblivious to the condition of their vehicles or who have little money for repairs.⁸⁰ Studies of this nature will provide a good understanding of the potential benefits and costs of various types of inspection programs.

In making spatial and time comparisons, it cannot be assumed

77. See A. D. LITTLE, INC., *THE STATE OF THE ART OF TRAFFIC SAFETY* 274-85 (1966); M. Mayer & T. Hoult, *Motor Vehicle Inspection: A Report on Current Information, Measurement, and Research*, 1963 (a report to the Wayne State Univ. Institute for Regional & Urban Studies).

78. J. Cresswell & J. O'Day, *Periodic Motor Vehicle Inspection and Predictive Analytical Modeling*, October, 1968 (research report made for the Univ. of Mich. Highway Safety Research Institute); A. McCutcheon & H. Sherman, *The Influence of Periodic Motor Vehicle Inspection on Mechanical Condition*, 1968 (report made to the Univ. of Mich. Highway Safety Research Institute).

79. See authorities cited in note 78 *supra*. In Michigan, where there is no program of motor vehicle inspection and lighting defects are not commonly ticketed, about one in twenty vehicles has a broken tail lens; in Pennsylvania, where compulsory inspection and police enforcement result in prompt replacement of broken lenses, only about 1 in 4,000 vehicles has a broken lens.

80. Buxbaum & Colton, *Relationship of Motor Vehicle Inspection to Accident Mortality*, 197 J.A.M.A. 31 (1966).

that other variables remain constant. The Connecticut speeding crackdown of 1956, discussed earlier in this Article,⁸¹ illustrates the difficulty of basing firm conclusions on retrospective study of data concerning the effectiveness of a change in the law. The mere fact that one jurisdiction has adopted a particular measure indicates that it believed that it had a special problem; the situation that occasioned the legislation may involve peculiarities that explain the data produced.⁸² For this reason early evidence from Great Britain indicating the dramatic effectiveness of a 1967 breathalyzer program to reduce driving after drinking must be accepted with some caution.⁸³ Moreover, a widely publicized program of law enforcement may have short-term benefits unlikely to persist over time. Thus, publicity and stepped-up enforcement may increase the public's perception of the risk of apprehension or the severity of punishment in a way that affects behavior; as the public lives with the new program, a more realistic assessment of the risks may lead to a deterioration of earlier results. Differential effects of enforcement on various groups (depending on such factors as age, race, marital status, sex, and social class) should also be considered.

B. *Controlled Experiments*

The difficulties of retrospective research can be avoided by conducting carefully constructed controlled experiments. Why not handle randomly selected groups of offenders in a legally different manner and compare the subsequent results in the experimental treatment group with the results in a control group? In so doing, we would solve some methodological problems but create some new problems of a different order. Experiments on human subjects involving legal requirements threaten a fundamental principle of the legal order: that equals will be treated equally. If controlled experiments were conducted, a deliberate inequality would be imposed by the legal system contrary to this fundamental principle. Even when done for proper motives in order to improve the lot of future generations, the controlled experiment raises practical and political

81. Text accompanying note 22 *supra*.

82. Campbell, *Factors Relevant to the Validity of Experiments in Social Settings*, 54 PSYCH. BULL. 297, 297-312 (1957); authorities cited note 75 *supra*.

83. In December 1967, the British Ministry of Transport issued a press release reporting that in October 1967, the first month in which the Road Safety Act of 1967 was in effect, there was a 12 per cent reduction in fatalities compared with October 1966. During the night hours from 8 p.m. to 4 a.m., when most fatalities involving drunk drivers occur, there was a 36 per cent reduction in fatalities. U.S. NEWS & WORLD REP., Feb. 19, 1968, at 101.

questions which must be dealt with by administrators and lawyers before researchers can be set free to conduct experiments on live subjects. Professor Morris has argued that controlled experiments on the effects of punishment are justifiable if two safeguards are imposed: (1) the treatment group is given more *favorable* treatment than is usually accorded the control group; and (2) the groups are chosen by lottery so that everyone has an equal chance for the more favorable treatment.⁸⁴

In many ways highway safety is a fruitful area for controlled experiments in the application of legal sanctions. As noted earlier, the moral content of traffic violations is very low and public and administrative attitudes toward regulation are rational in character. Penalties tend to be mild and nonpunitive; and experimentation with intensity of enforcement, levels of penalization, and types of rehabilitative treatment is as rationally related to highway safety as health research is to the prevention of disease. Moreover, officials presently exercise a large degree of discretion on matters of enforcement, sentencing, and treatment. As a result, the degree of variation in treatment at present is so large that the temporary inequalities caused by experiments are almost too insignificant to be noticed. Whether or not the safeguards of "testing down" (giving the treatment group more favored treatment) and of random selection will prove adequate in other areas, they would seem sufficient to justify increased experimentation in highway safety.

IV. CONCLUSION

What are the consequences of the application of legal sanctions? How can these consequences be determined? This Article has attempted to explore these questions in the limited field of highway safety, examining the available evidence and indicating areas where further investigation is essential. Although conclusions with respect to the general deterrent effect of traffic laws do not emerge, the parameters of the problem have been defined and plausible hypotheses suggested.

There is ample evidence that human behavior can be influenced by the application of legal sanctions. This influence is accomplished because legal norms have a moral and educative influence; because the potential offender fears the consequences attendant upon violation; and because the inculcation of norms—especially at an early age and when periodically reinforced—results in habitual and un-

84. Morris, *Impediments to Penal Reform*, 33 U. CHI. L. REV. 627, 645-55 (1966).

conscious behavior conforming to those norms. These general deterrent influences are highly variable depending upon such factors as motivation to engage in the prohibited behavior, the personality of the potential offender, and the conflicting norms of groups to which the individual owes loyalty and affection. Apart from these general variables, the effectiveness of a legal sanction depends, first and most importantly, upon the perceived risk of apprehension and conviction, and, second, upon the severity of the penalty.

Regulations intended to prevent unwanted driver behavior illustrate the general propositions stated above. General deterrence operates very effectively in the enforcement of parking regulations if any combination of a high apprehension rate or a substantial monetary fine makes illegal parking more inconvenient and expensive than legal parking. The effects of enforcing moving violations, which are intended to deter behavior that is likely to result in accidents, are more uncertain in nature and magnitude. Although negligence in the performance of complex tasks such as driving may be affected by the application of legal sanctions, the effectiveness of the present system of traffic justice is limited by extremely low apprehension rates, difficulties in enforcement, and doubts as to whether the right behavior is being affected. One serious issue is whether traffic violations which the police can most easily detect constitute the accident-producing behavior that society wants to reduce. This problem is not present with respect to drunk driving for it is well established that the occurrence of serious highway accidents is directly related to the consumption of alcohol by drivers. As with moving violations, however, the deterrent effect of present approaches to drunk driving is limited by low apprehension rates; moreover, it is possible that overly severe penalties may contribute to lower conviction rates. Better methods of detection, combined with identification of problem drinkers and the development of improved facilities for their treatment, offer the promise of increased deterrence and lower accident rates. Although information concerning the deterrent effects of potential civil liability is sparse, it seems doubtful that such effects are of great magnitude; liability insurance rates or policies that tend to reward good drivers and penalize bad drivers would appear to offer greater potential for deterrence and accident prevention. The rehabilitative effects of traffic courts, driver improvement programs, and other present methods of handling problem drivers (special deterrence) are also questionable: the habitual violators who are identified for treatment appear to have

deep-seated personality traits and attitudes that are not amenable to inexpensive and expeditious methods of mass treatment.

Two principal research strategies are available to fill gaps in present knowledge. Carefully constructed controlled experiments in which the legal treatment of randomly selected groups of drivers is varied over periods of time involve the fewest methodological problems but raise political and legal issues of considerable concern. To the extent that controlled experiments prove infeasible, ingenious use of "second-best" techniques—the careful and discriminating analysis of retrospective data with respect to the effects of particular regulations—will have to be relied upon. The methodological pitfalls are many, but indications and conclusions drawn from a variety of partial studies may still provide the basis for confident judgments.